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IN THE

Supreme Court of the United States

October Term, 1979

SIDNEY A. DIAMOND, COMMISSIONER OF PATENTS AND TRADEMARKS, *Petitioner*

v.

JOHN J. BRADLEY and BENJAMIN S. FRANKLIN

On Writ of Certiorari to the U. S. Court of Customs and Patent Appeals

BRIEF AMICUS CURIAE FOR THE AMERICAN PATENT LAW ASSOCIATION, INC. IN SUPPORT OF AFFIRMANCE AND/OR REMAND

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I. AUTHORITY TO FILE

This amicus brief is presented under Rule 36. The letters of consent are on file with the Clerk.

II. THE APLA AS A FRIEND OF THE COURT IN THE PUBLIC INTEREST

A. The Nature of the Amicus Organization

The American Patent Law Association, Inc. ("APLA") is a non-profit membership organization of over 4,000

lawyers interested in intellectual property law, that is, patents, trademarks, copyrights, trade secrets and related areas of law. Members of APLA not only practice before the Patent and Trademark Office ("PTO"), but also are concerned with patent litigation, with counseling on infringement and validity matters and with licensing or other transfer of patented and non-patented technology.

APLA membership is not restricted to any segment of the profession. Attorneys in private practice and those employed by corporations, universities and government are included. Members of the association and their clients represent widely divergent interests and views. They represent individuals, organized research and development (both academic and commercial), and large and small industrial and business enterprises.

B. The Interest of Amicus is the Public Interest in Preservation of the Patent System

The APLA has expertise in the day-to-day workings of, and the public benefits derived from, the American patent system. Since the broadly based association membership is not divided into plaintiffs' and defendants' bars, APLA is uniquely qualified to speak fairly on the general issues which affect the public interest in preserving the patent system.

C. APLA Takes No Position on the Patentable Merits of the Invention Involved in This Application

The jurisdiction of the Court of Customs and Patent Appeals ("CCPA"), in its review of the decisions of the

PTO tribunals, is limited.[1] This means that the decision of the CCPA in the case presently under review must *NOT* be considered as a conclusion that a patent should issue.[2] The CCPA decided *ONLY* that the PTO was wrong in rejecting all claims in the application for being outside the categories of subject matter eligible for patent protection[3] as set forth in 35 U.S.C. § 101 (1976). No

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1. While 28 U.S.C. § 1542 states broadly that the CCPA "shall have jurisdiction of appeals from decisions of" the Patent and Trademark Office, the patent statute requires that the court "shall hear and determine such appeal on the evidence produced before the Patent and Trademark Office, *and the decision shall be confined to the points set forth in the reasons of appeal.*" 35 U.S.C. § 144 (1976) (emphasis added). The policy of the CCPA in this regard is well summarized in the following passage from *In re Alul*, 468 F.2d 939, 941 (CCPA 1972):

> We note that a substantial part of the solicitor's brief is devoted to arguments which were not raised below and which are tantamount to new grounds of rejection. . . . We will not consider these new arguments. We realize the position this leaves appellants in, but we are confident that if any merit were found in the new arguments in cases like this, the Patent Office would reopen prosecution to assert them and give appellants a chance to respond to them.

2. "It is the Patent Office which grants patents, not this Court." *In re Arkley*, 455 F.2d 586, 589 (CCPA 1972).

3. It is critical that the Court understand the distinction we make in this brief between the issue of whether claimed subject matter *is eligible for patent protection*, on the one hand, and the issue of whether claimed subject matter *satisfies the conditions for patentability, i.e.*, is new, useful and nonobvious, and thereby merits the grant of a patent, on the other hand. It is the former issue only which is before the Court because that is the only ground on which the PTO chose to finally reject the application here involved. The APLA agrees that inquiry as to either issue must consider the claimed subject matter *in its entirety*, but emphasizes that each inquiry must be made separately and independently of the other. *Cf. In re Bergy*, 596 F.2d 952, 959 (CCPA 1979), wherein the CCPA expressed its concern regarding the

> commingling of distinct statutory provisions which are conceptually unrelated, namely, those pertaining to the *categories* of inventions in § 101 which *may* be patentable and to the *conditions* for patentability demanded by the statute for inventions

other issues were before the CCPA. The PTO chose not to pursue any other ground for rejection. The court thus could not consider questions related to the novelty or nonobviousness of the claimed subject matter.

The APLA believes that value judgments as to whether these respondents should or should not ultimately be *entitled to* a patent[4] have no proper place in deciding whether the subject matter which respondents seek to have patented is *within the statutory categories which are eligible for* the patent grant. While taking no position on whether the application now before the Court satisfies the various statutory requirements and conditions for patentability,[5] the APLA fully supports the holding of the CCPA that the claims of this application define subject matter which is eligible for patent protection under § 101 of the statute.

III. PURPOSE OF THIS BRIEF

The public interest in an effective patent system demands a broader view of the issues than that provided by the petitioner, which appears to be reflective only of administrative problems in the PTO.

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within the statutory categories, particularly the nonobviousness condition of § 103.

4. We are concerned that the nature of the Bradley and Franklin invention, coupled with the manner in which the government has developed its argument, may persuade some justices to vote for reversal *only* because they have become convinced that a patent ought not to issue on this particular application. Alternatively, some might conclude that to affirm the ruling of the CCPA will result in the issuance of many patents where the only novelty of the invention involved lies in the use of a programmed computer. We urge the Court to be clear that an affirmance of a CCPA decision does not mandate that even the application which is before the Court issue as a patent.

5. 35 U.S.C. §§ 102, 103 and 112 (1976), in particular.

The government seeks in this case and in its companion *Diamond v. Diehr* (No. 79-1112), as it did in *Gottschalk v. Benson,* 409 U.S. 63 (1972), and *Parker v. Flook,* 437 U.S. 584 (1978), to have the Court foreclose the granting of patents for all inventions involving computer programming. This attempt is at odds with the constitutional purpose behind our patent system, *i.e.,* "to promote the Progress of . . . the useful Arts."[6] In this technology, as in all others, it is a socially desirable goal, effectively implemented by our patent system, to induce and to encourage by patent grant the disclosure of new and useful information and the commitment of capital to research and development.

Moreover, the government's brief urges an approach to claim analysis—having potential application beyond the specific area of computer program-related inventions —which could severely undermine the patent system itself.

It is a major purpose of this brief to persuade the Court that this approach cannot be supported in law or in logic. The CCPA in this case was correct in not following the approach urged by the PTO. The decision of the CCPA (contrary to the assertions of the government and certain amici) is not inconsistent with the holdings in *Benson* and *Flook*. Rather, it is based upon a reasoned approach,[7] consistent with those cases and with the aims of the patent system, whereby claimed

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6. U.S. Const. art. 1, § 8, cl. 8.

7. The CCPA approach and how it is fully consistent with the decisions in *Benson* and *Flook* and with the philosophy underlyinng those decisions is fully discussed in our brief in *Diamond v. Diehr,* No. 79-1112, filed concurrently herewith.

subject matter involving computer-related or mathematics-related concepts may be tested to determine whether it is eligible for patent protection.

IV. COMMENT ON THE GOVERNMENT'S STATEMENT OF THE ISSUES BEFORE THE COURT

The Petition presents the question as:

> Whether a computer program that regulates the internal operation of a computer is patentable subject matter under 35 U.S.C. 101.

This suggests that respondents, in the application before the Court, are seeking to patent a computer program, but this could not be further from the truth. We ask the Court to compare "the question" presented with the actual language of the application claims. Respondents here are not claiming a "computer program." In fact, respondents have pointed out not only that they are *not* claiming a computer program, but also that they have never intended to do so.[8] The CCPA, in reversing the decision of the PTO, purposefully avoided the approach to claim analysis urged by the PTO and expressly determined that the claimed invention was "a combination of tangible hardware elements—a machine—including some hardware elements which contain microprogrammed information termed 'firmware'." *In re Bradley*, 600 F.2d 807, 813 (CCPA 1979).

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8. For more than 100 years the patent statutes have required each patent applicant to "particularly point out and distinctly claim the subject matter he regards as his invention." This requirement continues in the present statute in the second paragraph of 35 U.S.C. § 112 (1976).

It is a fact, however, that respondents' invention *does require,* in its practical application, the *use* of a programmed computer and the claims now before the Court make reference to this fact. The question presented by the government focuses on this point alone, through an exercise which ignores what the patent applicants are seeking to patent and what the court below found to be defined by the application claims. The "how" and "why" of this exercise, its basic impropriety, as well as its insidious danger to the constitutional underpinnings of our patent system, will be the principal focus of this brief.

V. ARGUMENT

A. It Is Only Through the Use of an Ill-Conceived, Irrational Approach to Patent Claim Analysis That This Case Can be Said to Present the Issue of Whether Computer Programs Are Statutory Subject Matter Eligible for Patent Protection

As the government states it, the "Question Presented" in this case and in its companion, *Diamond v. Diehr,* is whether a particular computer program is patentable subject matter under § 101. This Court has already declined twice to rule broadly on this issue, indicating that it should be resolved by Congress.[9] Moreover, as we earlier mentioned, a computer program, per se, is not claimed as the invention.

Nevertheless, the PTO, and now the Solicitor General, argue that the subject matter of these claims must be

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9. *Gottschalk v. Benson, supra,* 409 U.S. at 72-73; *Parker v. Flook, supra,* 437 U.S. at 595.

considered as nothing more than a computer program. Why do they do so? The answer, we believe, is that the government seeks judicial approval of a proposed (perhaps already established)[10] PTO practice, against its stated policy,[11] whereby all claims in computer-related cases would be summarily rejected under § 101 as ineligible for patent protection in a preliminary, "threshold" examination procedure which does not reach the merits of the claimed invention.

Quite literally, the PTO, in these appeals, is attempting to stem a tide, for the computer has become the life-blood tool for technological development. Because of its inherent capabilities—its speed, its computational power, its ease of reconfiguration as system requirements change —it has found applicability in every field of technology. The advent of the microprocessor (a scaled down, "mini" computer) is having the same effect that the transistor had when it became a basic tool for designers. As a result, the PTO is being asked to examine an ever-increasing number of applications, in many varied areas of complex

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10. In both cases now before the Court, rejections based upon other statutory grounds were initially made but abandoned without comment before the appellate procedures began. In the years following this Court's decision in *Dann v. Johnston,* 425 U.S. 219 (1976), there has been such a notable absence, in the "computer program" cases brought before the CCPA of issues other than those relating to threshold questions that that court has felt compelled to express its concern. Witness the court's footnote comment in *In re Phillips,* 608 F.2d 879, 883n.6 (CCPA 1979): "The PTO has apparently not considered appellants' application for compliance with 35 U.S.C. §§ 102 and 103. Piecemeal examination is to be avoided. 37 CFR 1.104 and 1.105. *See also* MPEP 707.07(g)." The CCPA has also stated that it will not "assume de novo the function of an examiner who has declined, in reliance upon § 101, to conduct an examination for patentability under §§ 102 and 103." *In re Sarkar,* 588 F.2d 1330, 1334n.10 (CCPA 1979).

11. *See* note 16 *infra* and accompanying text.

technology, wherein subject matter sought to be patented involves the *use* of computer programming or programmed data processors.[12]

Moreover, whereas in *Benson* the invention claimed was held to be the mathematical algorithm itself, and in *Flook* the claimed invention was held to be a mathematical manipulation,[13] many new inventions for which patents are being sought are computer program-related *only* in that a program algorithm, or the use of a programmed data processor, is involved in a *portion* of the claimed subject matter. Since such claimed subject matter, as a whole, is neither a mathematical algorithm nor a general mathematical manipulation, the *Benson* and *Flook* decisions, by themselves, do not justify abandonment of established PTO policy requiring that every application be given as complete an examination as possible.[14]

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12. We have no reason to doubt the unsubstantiated allegation made in the government's petition in this case that "[t]he Patent and Trademark Office presently has pending more than 3000 patent applications in which the patentability of computer software or firmware is a potential issue." Pet. at 13. To place this in proper perspective, that figure represents about 1% of the total number of applications for patent which are now pending.

13. In *Flook,* the mathematical algorithm was presented as an equation, which was then solved.

14. Of the more than 100,000 applications considered annually by the PTO, many could be summarily rejected on certain "threshold" matters without giving any serious attention to the questions of novelty and obviousness of the application subject matter. More often than not, however, the examiner's conclusion on a threshold question is a preliminary one, made in an area where there is much room for dispute. Accordingly, it is PTO policy not to suspend the continued examination of the patentable merits of the invention until the threshold question is resolved, but rather to render a complete examination so as to avoid "piecemeal" consideration of the application. PTO Rule 105, 37 C.F.R. § 1.105 (1979), expressly states that an examiner's action on an application should be "complete as to all matters, except . . .

Accordingly, the PTO is in need of either an increased appropriation from Congress by which it could handle this increasing workload, or the authority from this Court by which it may abdicate its most important modern-day function by refusing even to consider the patentable merits of computer program-related inventions. Quite clearly, the PTO has chosen to seek the latter. The government's statement of the question in each of these cases is merely the culmination of a PTO effort to force the facts of the case into the issue which it wishes decided, that is, that *any* computer program-related invention must be regarded as outside the statutory categories of subject matter considered eligible for patent protection.

Considered in its entirety, the government's approach to considerations under § 101 involves the following two-step test:

(1) Dissect the claim to identify the point of novelty, and

(2) If the point of novelty itself does not fit into a class of patentable subject matter, and the claim considered without the novel part is old, then the claim is non-statutory.

If the "point of novelty" involves the use of a computer program, the government reads *Benson* as controlling in two different respects. First, it says that *Benson* stands for the non-patentability of *all* computer programs. Second, it contends that the holding in *Benson* —that mathematical algorithms are not patentable sub-

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in appropriate circumstances." The Manual of Patent Examining Procedure ("MPEP") states that "the examiner ordinarily should reject each claim on all valid grounds available." MPEP § 707.07(g) (4th ed. 1979).

ject matter—must also extend to programmed computers since programmed computers operate according to simple mathematical rules. Accordingly, it concludes that all programmed computers are non-patentable subject matter.

The second part of the test, by which the remainder of the claim, after it has been determined to be old, can be ignored and the "point of novelty" considered by itself to determine whether the claim as a whole defines statutory subject matter,[15] has been derived by the government[16] from the majority opinion in *Parker v. Flook.*

The ALPA believes that this two-step approach cannot be supported either under the patent statute or under clearly applicable case law. As we will show,

(1) The test cannot withstand an analysis of its premises;

(2) Its artificiality will result in unreasonable discrimination and disincentives which are at odds with the patent system; and

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15. This is a revival of an approach considered and rejected by the CCPA more than ten years ago. At that time, the PTO proposed to reject as non-statutory any claim wherein the "point of novelty" could be characterized as a "mental step." The CCPA's comments in treating this question are particularly appropriate:

> A much closer question arises, however, when we consider the *principle* extracted by the examiner from the mental step cases and by the board from the printed matter cases. The principle may, we think, be fairly stated as follows: If, in an invention defined by a claim, the novelty is indicated by an expression which does not itself fit in a statutory class . . ., then the whole invention is non-statutory since all else in the claim is old. We do not believe this view is correct under the Patent Act and the case law thus far developed.

In re Bernhart, 417 F.2d 1395, 1399 (CCPA 1969).

16. *See* Pet. Br. in *Diamond v. Bradley* at 9; Pet. Br. in *Diamond v. Diehr* at 7-10.

(3) It is not even consistent with the rationale supporting the two Supreme Court cases from which it is supposed to be derived.

The issue of whether claimed subject matter fits into one of the § 101 statutory categories which Congress declared eligible for patent protection should properly be considered before the patentable merits of the invention are examined. In *Parker v. Flook,* this Court stated:

> The obligation to determine what type of discovery is sought to be patented must precede the determination of whether that discovery is, in fact, new or obvious.

437 U.S. at 593. It is not this premise with which we take issue.

The APLA does take strong issue, however, with any examination procedure which does not consider the claimed subject matter *as a whole.*[17] We cannot abide the approach utilized in the two cases now before the Court, and especially the two-step "test" urged by the government. We agree fully with the views of Chief Judge Markey:

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17. We *do not* contend that it is necessarily wrong to analyze a patent claim element by element. The Court in *Graham v. John Deere Co.,* 383 U.S. 1, 17 (1966), made it clear that the statutory conditions for patentability must be tested by an analysis which determines the differences between the subject matter defined by the claim and that which is in the prior art. We *do* contend, however, that a § 101 inquiry into subject matter patentability must consider the claimed "subject matter as a whole." The Court, in *Flook,* accepted this position. 437 U.S. 584, 594n.16.

It would be absurd to determine whether a patent claim meets the conditions for patentability stated in 35 U.S.C. §§ 102 and 103 by any analysis which ignores portions of the claim language. We submit that it can be no less absurd to determine whether claimed subject matter is eligible for patent protection under § 101 when substantial portions of the claim are ignored.

> The advent of a wholly new technology confronts the Patent and Trademark Office (PTO) with administrative problems in performing its vital service to the public interest in encouraging true progress of the useful arts. The solution to administrative problems does not lie, however, in so interpreting the law as to reduce an administrative burden. Avoiding a petition to Congress for increased funds or legislative relief, using § 101 to exclude new technology, presenting to the Supreme Court patentability issues not considered in the PTO or in this court, and employing phrases from the Court's opinions as rejection rubrics under § 101 in subsequent cases, is an approach long overdue for abandonment.

In re Gelnovatch, 595 F.2d 32, 42 (CCPA 1979) (Markey, C.J., dissenting).

It is only through the use of the government's contrived and irrational "two-step" approach to claim analysis that the issue of whether computer programs are statutory subject matter eligible for patent protection can be argued to exist in this case. Without the two-step approach, the CCPA decisions in both these companion cases can be affirmed, and sent back to the PTO for proper examination, without the need for any discussion of the issue of whether "computer programs," in and of themselves, are proper subject matter for the patent grant.

B. The Government's Two-Step Approach to Determination of Whether Claimed Subject Matter is Eligible for Patent Protection Violates Statutory Mandates and Prior Case Law Requirements on Claim Interpretation

As this Court itself has stated:[18]

18. *McClain v. Ortmeyer,* 141 U.S. 419, 424 (1891).

> The object of the patent law in requiring the patentee to "particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery" is not only to secure to him all to which he is entitled, but to apprise the public of what is still open to them. The claim is the measure of his right to relief, and, while the specification may be referred to to limit the claim, it can never be made available to expand it.

Section 131 of the patent statute,[19] on the other hand, requires the Patent and Trademark Office to examine only "the alleged new invention." The courts have long ago made clear that this can only mean *the invention as claimed.*[20] The two-step "point of novelty" approach to § 101 consideration violates this statutory mandate in that it calls for the patent examiner to ignore what the applicant has "alleged [to be his] new invention" and to substitute instead the examiner's own analysis of what is being claimed.

Closely akin to the mandate of 35 U.S.C. §§ 112, 131 is the fundamental rule that during the examination process limitations may not be read into or read out of a claim. The many cases[21] that comprise this body of

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19. § 131. Examination of application.
The commissioner shall cause an examination to be made of the application and the alleged new invention; and if on such examination it appears that the applicant is entitled to a patent under the law, the Commissioner shall issue a patent therefor.
35 U.S.C. § 131 (1976).

20. *See, e.g., In re Moore,* 429 F.2d 985 (CCPA 1970).

21. *See, e.g., In re Priest,* 582 F.2d 33 (CCPA 1978); *In re Deutsch,* 553 F.2d 689 (CCPA 1977); *In re Kebrich,* 201 F.2d 951 (CCPA 1953); *In re Fischer,* 113 F.2d 492 (CCPA 1940); *In re Crowell,* 84 F.2d 206 (CCPA 1936); *In re Krichbaum,* 39 F.2d 280 (CCPA 1930).

law have long recognized that the rule applies to *all* pre-issuance questions involving claim interpretation, both in the tribunals of the PTO and in the courts reviewing PTO actions.

The reasons for this rule were well stated by the CCPA in *In re Prater,* 415 F.2d 1393, 1404-05 (CCPA 1969) (footnotes omitted):

> [T]his court has consistently taken the tack that claims yet unpatented are to be given the broadest reasonable interpretation consistent with the specification *during the examination of a patent application* since the applicant may then *amend* his claims, the thought being to reduce the possibility that, after the patent is granted, the claims may be interpreted as giving broader coverage than is justified. . . . We are not persuaded by any sound reason why, at any time before the patent is granted, an applicant should have limitations of the specifications read into a claim where no express statement of the limitation is included in the claim.

Thus, it is well settled that, in the examination process, what is to be examined is the claims, nothing more and nothing less. Any test for determining the presence or absence of statutory subject matter which requires reading limitations out of the claim in question simply does not comport with this fundamental rule.

C. Dictum in Parker v. Flook Cited in Support of the Two-Step Approach Cannot be Justified

The majority opinion in *Flook* was quite specific in reciting the limited holding of that case. "Very simply, our holding today is that a claim for an improved method of calculation, even when tied to a specific end use, is

unpatentable subject matter under § 101." 437 U.S. at 595n.18. However, in reaching that holding, the majority appeared to set forth an analysis which requires that any hitherto unknown "principle of nature" embodied in a claimed invention must, nonetheless, be "assumed" to be within the prior art. It is this dictum upon which the government implicitly premises its logic that anything in a claim which is or relates to "a scientific principle, idea, concept, formula, or phenomenon of nature" *cannot be considered at all* in a determination of patentability, and if everything else in the claim "is old, the claim does not recite statutory subject matter," *i.e.*, is not even eligible for consideration for patent protection under § 101. *See* Pet. Br. at 9-11.

We submit that the Court in *Flook* could not have intended that this broad dictum be indiscriminately applied to cases having fact situations extending well beyond those in *Flook*. Were a contrary course of action followed and such dictum taken literally, *all* inventions could be urged to be unpatentable since all inventions can be reduced to underlying laws or principles of nature which, once known, make the implementation of such laws or principles obvious. The Court could not possibly have intended such a result knowing that a patent it had sustained in recent years would have been manifestly unpatentable had the scientific truth on which it was based been taken as part of the prior art.[22] Surely, this cannot be the law.

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22. We speak of the "Adams battery," the patentability of which was sustained in *U. S. v. Adams*, 383 U.S. 39 (1966). The invention was a simple combination of magnesium and cuprous chloride electrodes in water. Claim 1 of the patent in suit read:

> A battery comprising a liquid container, a magnesium electropositive electrode inside the container and having an exterior

It is important to understand that technology has reached today or soon will reach the point where *every* invention is *expressible* in terms of mathematical relationships, even where the specific principles upon which the invention is based are not fully understood. Physicists today express even the "uncertainty" principle in mathematical terms. At least in part, this capability is based upon the use of the computer as a scientific tool for analysis and expression. If a properly programmed computer is fed enough information about the nature of an invention—about how it works, what functions are performed, what results are obtained—it can express almost any invention in terms of mathematical relationships. It should be clear then that *no* standard by which an invention is to be judged, whether for patentability itself or even for eligibility for patent protection, can properly be built upon whether the claim, *i.e.*, the word definition of the invention, characterizes all or part of the invention in mathematical or abstract terms.

Further, one of the fundamental bases for the constitutional provision authorizing the creation of a patent system was the inducement of the disclosure of discoveries in the "useful arts." In enacting § 101, Congress expressed its conclusion that the categories of subject matter recited therein are of such character that it is socially

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terminal, a fused cuprous chloride electronegative electrode, and a terminal connecting with said electronegative electrode. 383 U.S. at 42. The Court expressly found that each of the elements of the Adams battery was well known in the prior art. Patentability rested entirely on the discovery that combination of the three elements produced an unexpected electrochemical reaction which could be employed in storage batteries. If that electrochemical "principle of nature" had been assumed to be within the "prior art," the claimed invention would have been quite obvious and thus, according to *Flook*, non-statutory subject matter.

desirable to induce their disclosure and the commitment of capital to reduce them to commercial practice. Clearly the public policy considerations expressed in the patent statute are not based upon nor do they even consider the degree to which current scientific analysis permits an invention to be reduced ultimately to abstract mathematical expressions.

As an illustration of the problem here involved, consider one use of computer technology in the carburetor of today's automobile. In older cars, the carburetor contains a fixed mechanical circuit through which fuel and air are mixed and combustion gases exhausted. At different accelerations, speeds and operating temperatures, the ratio of fuel to air in this fixed mechanical circuit varies considerably from that which would produce optimum engine combustion. The result: inefficient power production, generation of excessive pollutants in the exhaust, and waste of fuel. In some new cars, however, manufacturers are installing microprocessors programmed to calculate optimum fuel/air ratios instantly in response to sensed changes in conditions and to cause modifications to take place within the carburetor to assure that carburetion is always at or near optimum. Reportedly these microprocessors enable an automobile to get up to 10% more mileage with up to 15% less pollutant output. Is this not the type of "useful art" for which the patent system was authorized by the Constitution and created by Congress? Of course, if the computer-control circuits and mechanisms would have been obvious to workers in the pertinent art, there can be no patent. But, clearly, the mere presence of programmed microprocessors should not dictate whether this improvement in the technology

of carburetors can be eligible for consideration for the patent grant.

Finally, we urge the Court to consider the chilling effect which the government's proposed "no-patent" rule would have on just one of the many incentives for which the patent system was designed — the incentive to disclose. Many innovations in the technological arts do not result from a "flash of genius," but rather are the product of painstaking trial and error.[23] Often, the scientific principles explaining the significant overall advance embodied in the end result cannot immediately be explained. Thus, it is a tenet of patent law[24] that the applicant for patent is not obliged to explain or even set forth the principles on which his invention is based. Yet, is it to be the law that the inventor who understands and ex-

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23. Nevertheless, "[p]atentability shall not be negatived by the manner in which the invention was made." 35 U.S.C. § 103 (1976).

24. Consider, *e.g.*, this Court's statement in *Diamond Rubber Co. v. Consolidated Rubber Tire Co.*, 220 U.S. 428, 435 (1911):

> A patentee may be baldly empirical, seeing nothing beyond his experiments and the result; yet if he has added a new and valuable article to the world's utilities, he is entitled to the rank and protection of an inventor. And how can it take from his merit that he may not know all of the forces which he has brought into operation? It is certainly not necessary that he understand or be able to state the scientific principles underlying his invention, and it is immaterial whether he can stand a successful examination as to the speculative ideas involved. . . . He must, indeed, make such disclosure and description of his invention that it may be put into practice. In this he must be clear. He must not put forth a puzzle for invention or experiment to solve, but the description is sufficient if those skilled in the art can understand it. This satisfies the law, which only requires as a condition of its protection that the world be given something new and that the world be taught how to use it. It is no concern of the world whether the principles upon which the new construction acts be obvious or obscure, so that it inheres in the new construction.

plains the newly discovered (or appreciated) principle(s) embodied in his invention cannot obtain a valid patent *unless* he also claims a *nonobvious* application of the principle which is *nonobvious even with the principle known,* while the inventor who does not disclose or cannot explain the principle(s) underlying his invention has his evaluated solely against what the statute defines as prior art? Such a rule would inevitably result in the *non*-disclosure of many newly-discovered phenomena of nature — and this at a time when our society in the United States is deploring the slowdown in innovation and is seeking ways to stimulate its growth.[25] Yet such a rule would also follow from the "logic" of the two-step approach and, in fact, is already being applied by the PTO where that agency cannot hold, as it did here, that a patent claim, considered without that which is "non-statutory," defines only the "conventional." If a newly-discovered or appreciated phenomenon or principle of nature which is recited in a patent claim is not to be considered at all in the examination of that claim, then *the rest of the claim* must define that which is novel and not obvious in order for the claim to be held patentable.

It thus follows, according to the "logic" of the two-step approach, that the discoverer of a previously unknown or unappreciated principle, such as a mathematical relationship, must also discover or invent a non-obvious implementation of that principle in order to obtain a patent. Is this the legacy which the Court intended for *Parker v. Flook?* We do not believe so.

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25. *See, e.g.,* SENATE COMM. ON COMMERCE, SCIENCE, AND TRANSPORTATION, 96th CONG., 1ST SESS., REPORT ON NATIONAL STRATEGY FOR TECHNOLOGICAL INNOVATION (Comm. Print 1979).

D. The Decisions in Benson and Flook Can Reasonably Be Urged to Be Consistent with a Rational Philosophy Found in Past Decisions of this Court Which Supports the Constitutional Goals of Our Patent System But *Does Not* Support the Artificial Analysis Proposed by the Government

The APLA interprets the decision in *Benson* to be an expression of the following policy regarding patent law: A patent claim drawn so generally as to preempt a mathematical algorithm in its entirety will be treated no differently than any other claim to a principle of nature. It will be held non-statutory, irrespective of the fact that the mathematical algorithm is intended to be implemented only by means of a computer, or that the only practical use for the algorithm is in association with a computer.

The following implication of the *Benson* holding eventually became clear: the fact of "computer implementation," whether it is "read into" a claim or expressly recited in the claim, will not remove from that claim the objection that it is drawn in general terms to an abstract principle and, as such, defines subject matter outside the patent statute. We accept this implication as being both pragmatic and consistent with other patent law. The digital computer is a tremendously useful technological tool. Its capacity to resolve complex mathematical relationships with incredible speed has led to the development of new mathematical relationships, previously unsolvable, to be used to accomplish useful technological goals. But this fact, that such a newly developed principle can only be implemented by computer, even coupled with the fact

that the relationship has value only in the environment of the practical end use contemplated, should not necessarily determine whether a claim which recites *only* the mathematical relationship or a mathematical manipulation thereof is eligible for patent protection.

In this Court's decision in *O'Reilly v. Morse,* 56 U.S. (15 How.) 62 (1853), the claim struck down was worded to preempt *all* practical applications of the disclosed new principle. The Court's conclusion that such claim would in effect preempt the principle itself, was an important factor in its decision holding that claim unpatentable. In *Benson,* patent claims which were drawn to *the only* practical application of the scientific principle involved, a mathematical relationship, were struck down because they also amounted in effect to a preemption of the principle itself.

Accordingly, the underlying philosophy of the *Benson* decision is consistent with the Court's view, going back more than one hundred years, that patents were not intended to be granted on general principles of nature, even those which had never before been discovered or appreciated. Rather, since the patent system was intended "[to] promote the Progress of . . . useful Arts," the discoverer of a principle of nature must first implement that principle in the practical, specific manner in one of the "useful arts" in order to be eligible for a patent. A claim which is no more specific than to recite the general application of the newly discovered principle will fail because it is an attempt to preempt more than is permissible. Similarly, a claim which fails to recite or make clear the specific implementation of the recited principle to a practical end use can reasonably be con-

sidered to be no more than a claim on the principle itself.

The decision in *Flook* can be viewed as an extension of the holding in *Benson* and consistent with its underlying philosophy. In *Flook,* the claims presented a mathematical relationship and solved it to produce a number. It was recited that this number was then to be used as an updated alarm limit in the control of petroleum refining processes. Thus, there was no apparent attempt to preempt all possible uses of the mathematical principle. Nevertheless, the majority in *Flook* found the claims to be non-statutory, holding that methods of calculation, even improved methods intended for a specific end use, should not be eligible for patent protection.

The *Flook* decision was not required by the holding or by the underlying philosophy in *Benson.* It was probably also not required by the Constitution. Nevertheless, the decision is consistent with *Benson* in that it gives no weight to the fact that the claimed mathematical relationship can only be practically implemented through the use of a computer. It is consistent also in its implication that a mathematical relationship is not the kind of discovery for which the patent system was intended. *Flook* extended this reasoning to hold, in effect, that the mere solution of a mathematical relationship, even in a technological environment, is not that application of the principle which converts it to a patentable "useful art."

However, the APLA sees nothing in *Benson,* in *Flook,* or in the two cases taken together, which requires that a claim be held ineligible for patent protection *merely because it includes a mathematical relationship, e.g.,* as a means of defining a structural relationship between

physical components of an otherwise "useful" device or apparatus, *or because it solves a mathematical relationship* as one step of a process leading to a specific, practical end use.

In *Flook,* the end result of the claimed method was simply the solution of a newly recognized mathematical relationship to produce a number, and the replacement of a pre-established number with the number newly produced. Even when tied to the specific end use environment recited in the claim preamble, the claim still amounted to little more than a method of calculating a new value for a number obtained according to a mathematical formula. The recited subsequent use of the calculated result was not so much considered *irrelevant* by the Court, as it was considered insignificant. The Court's holding that Flook's method amounted to nothing more than "an improved method of calculation" makes it clear that it was the *generality* of the subsequent *application* of the newly-discovered mathematical principle that concerned the majority.[26]

Thus, as we see it, the *decision* in *Flook* would require that post-solution activity include a specific, practical application of the calculated result to a specific benefit, as opposed to a general suggestion that the calculation may be (somehow) usefully applied in the environment

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26. The majority clearly was influenced by the fact that:

> The patent application does not purport to explain how to select the appropriate margin of safety, the weighting factor, or any of the other variables. Nor does it purport to contain any disclosure relating to the chemical processes at work, the monitoring of process variables, or the means of setting off an alarm or adjusting an alarm system. All that it provides is a formula for computing an updated alarm limit.

Parker v. Flook, 437 U.S. at 586.

of recited end use. While the *Flook* majority clearly went too far in apparently requiring an independent "inventive concept" in the recited application of the principle,[27] its implicit requirement of a more specific recitation of an application providing practical benefit is consistent with prior cases[28] and not out of line with the ultimate aims of the patent system.

Accordingly, the *mere fact* that a claim includes or is based upon a non-statutory principle of nature, has to be recognized as *irrelevant* to the question of whether the entirety of the claimed subject matter comes within one of the categories of inventions eligible to be considered for patent. What is important, and critically relevant, is the degree to which the claim is drawn to a practical application of the principle to a specific beneficial result or effect in one of the useful, *i.e.*, technological, arts. If, in addition, the subject matter embodying such prac-

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27. This is the premise of Section C., *supra*.

28. Note, in particular, the consistency of this approach with that used by this Court in deciding *Brenner v. Manson*, 383 U.S. 519 (1966). In the *Manson* case, the claimed invention was a process for making a chemical compound which, although heretofore known, had no known practical use. The compound was little more than a scientific curiosity. While recognizing that a process for making a chemical compound would ordinarily be the kind of useful process for which the patent system was intended, this Court concluded that the lack of a specific beneficial usefulness of the end product prevented the claimed method from having the kind of usefulness required by 35 U.S.C. § 101.

To be "useful" in the sense of the patent statute, therefore, the Court requires that a claimed invention must have a readily available, specific practical use. In the area of computer-implemented inventions, the Court now takes the position that a claim presenting a mathematical algorithm or other abstract scientific principle to be implemented by computer will not be considered eligible for patent protection unless that principle is presented in the context of a specific practical *application* which produces a result or effect having a readily ascertainable, commercial benefit in one of the technological arts.

tical application also satisfies the statutory *conditions* for patentability, the grant of limited exclusive rights is undeniably justified.

E. Conclusion

We have asked the Court to compare the "question" on which the government sought certiorari in this case with the actual language used in the claims of the application before the Court. If this question is presented by this case, it can only be through a process of analysis which *ignores* the clear language of the claims, *ignores* decades of customary procedure, and *ignores* a long legal history of repeated insistence by the CCPA on specific application of the statutory language of the patent code in making rejections of an applicant's claims for patent protection. If this question is presented, it can only be by a claim dissection process which uses the meat axe, not the probing scalpel—a process which destroys the basic framework of the claims and changes them beyond recognition.

Respondents here are not claiming "computer programs." Nor does this case involve any attempt to "word" a claim through use of the draftsman's skills to make it appear as if it is drawn to something else when it in fact covers nothing but a computer program. If these claims are considered in their entirety, it is clear that no "principle," or abstract proposition, will be preempted by any patent which may issue. Rather, what will be patented will be a very practical, very beneficial *application* of programmed data processors producing desirable results in the technological arts. The disclosure of this

type of invention is precisely what our patent system was intended to encourage.

As we have shown, the logic of the position being asserted by the government will result in a rule which could strike down many meritorious inventions and which could lead to the non-disclosure of previously unkown or unappreciated principles and phenomena of nature. This cannot be the intent of the Court.

The APLA urges the Court to recognize that

> labeling any invention as a "computer program" and, therefore, not eligible under § 101 to be considered for patent protection simply because the novel elements or steps of the invention reside in the use of a programmed computer, cannot be justified under the patent statute or prior decisions of this Court; and that

> claims involving computer programs can be analyzed according to the principles expressed in the existing case law from this Court and from the CCPA without having to rely on Congress to act.

The judgment below, in its holding that § 101 is not a proper basis for rejecting this application, should be affirmed. Additionally, or in the alternative, if the Court deems it appropriate, this case should be remanded to the PTO for further consideration, consistent with the

Court's opinion, of any remaining questions under §§ 102, 103 and 112 of the patent statute.

Respectfully submitted,

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